

Attributes	Description
<i>Instrument</i>	
Acronym	TraceGas
Full Name	Trace Gas – O3
<i>ResponsibleParty</i>	
Name	Glenn Diskin
Affiliation	NASA Langley Research Center
Contact Info	757-864-6268, glenn.s.diskin@nasa.gov
<i>ValidPeriod</i>	Aug. 03 – Oct. 05, 2019
<i>MeasurementVariables</i>	O3_ppbv, ozone volume mixing ratio
<i>TimeSynchOrigin</i>	UTC time synched by correlation of ozone to NASA LaRC Trace Gas CH4 0.4 Hz data, PI Glenn Diskin
<i>Manufacturer/Developer</i>	2B Technologies
<i>Model Number</i>	Model 205
<i>Date/Serial Number</i>	1680DB (#1), 1679DB (#2)
<i>MeasurementUncertainty</i>	
Overall (1 sigma at 0.5 Hz)	6 ppbv
Accuracy	N/A
Precision	N/A
<i>ObservableRange</i>	0 – 250,000 ppbv
<i>ObservingMethod</i>	Dual cell broadband UV absorption spectrometry
<i>ObservingMethodDetail</i>	Instrument contains two absorption cells, one sampling ambient air directly with the other sampling ozone scrubbed air using a potassium iodide scrubber. Sampling of each of these inputs switches at 1 Hz, with the average differential absorption at 0.5 Hz calibrated to ozone concentration. Cavity sampling pressure: ~30-40 mbar above static pressure, directly measured, dependent on flight conditions. Net sampling rate: 0.5 Hz.

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<i>ObservingMethodReference</i>	B.C. Baier et al., "Multi-species assessment of factors influencing regional CO2 and CH4 enhancements during the wintertime ACT-America campaign", JGR-Atmos, 125 (2018). DOI: 10.1029/2019JD031339 DiGangi et al., "Seasonal Variability in Local Carbon Dioxide Fire Emissions over CONUS using Airborne In-Situ Combustion Efficiencies", in prep (2020).
<i>CalibratingMethod</i>	Laboratory calibration before campaign with in-flight zeroing
<i>CalibrationStandard</i>	2B Technologies Model 306 Ozone Calibration Source, NIST-traceable calibration
<i>CalibrationLog</i>	Inlet air switch to sample through KI filter to measure zero during flight every hour, multipoint laboratory calibration performed before campaign
<i>samplingStrategy</i>	In-situ measurements of ambient air, direct measurement of concentration
<i>sampleTreatment</i>	Measured air is subsampled off of high flow manifold
<i>sampleTreatmentDescription</i>	Inlet air is directed to 1.5" ID PTFE sampling manifold, which is then exhausted to a static exhaust port. Flow through manifold is determined by pressure differential of inlet ram pressure to static pressure, and is typically ~30 LPM in flight conditions. Instrument flow is subsampled near the inlet side of manifold and exhausted near outlet side of manifold to minimize pressure differential load on internal instrument pump. All sampling materials upstream of instrument are either PFA or PTFE.
<i>samplingProcedure</i>	J-probe 8" x 3/8" ID PFA-lined SS inlet with 4" standoff from P-3B probe window located at Flight Station 740R (starboard side), ~5' 3/8" ID PFA tubing
<i>samplingProcedureDescription</i>	N/A
<i>DataProcessing</i>	All species corrected with calibration curve calculated with both ground and inflight calibration/zeroing events, filtered for artifacts. Final data is reported as average of two instruments to minimize effects of any altitude artifact.
<i>softwareDetails</i>	N/A
<i>DataReportingInformation</i>	Volume mixing ratio at 0.5 Hz
<i>Subequipment</i>	

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